



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

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GOVERNOR

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**North Carolina Board of Transportation
Environmental Planning and Policy Committee
Meeting Minutes for February 2, 2005**

A meeting of the Environmental Planning and Policy Committee (EPPC) was held February 2, 2005 at 8:30 AM in the Board Room (Room 150) of the Transportation Building. Board Member Nina Szlosberg chaired the meeting. Other Board of Transportation members that attended were:

Tom Betts
Conrad Burrell
Bob Collier
Marion Cowell
Sam Erby
Cam McRae

Other attendees included:

John Adams	Deborah Hutchings	Jerry Page
Dwayne Alligood	Berry Jenkins	Benton Payne
Mike Bruff	Sen. Clark Jenkins	M.A. Pettyjohn
Moy Biswas	Daniel Keel	Rebecca Putterman
Lori Cove	Kevin Lacy	Jay Swain
Dawn Garrison	Don Lee	Joel Setzer
Craig Deal	Sharon Lipscomb	Robert Sides
Rhett Fussell	April Little	Roy Shelton
Gail Grimes	Robin Little	Bruce Siceloff
Rob Hanson	Travis Marshall	Charles Tomlinson
Teresa Hart	Ehren Meister	Michael Wagner
M.L. Holder	Beau Mills	
Julie Hunkins	Jon Nance	

Ms. Nina Szlosberg welcomed everyone to the meeting and extended a special welcome to Senator Jenkins. Ms. Szlosberg then accepted a motion to approve the meeting minutes from the January committee meeting, as presented, circulated the attendance roster, and called the meeting to order.

Ms. Szlosberg introduced Bill Holman, Executive Director of the Clean Water Management Trust Fund, to provide an update on the Stream Mapping Initiative and proposed resolution. Ms. Szlosberg noted that the stream mapping study was established by law. Mr. Holman began his

presentation, noting that the NCDOT, being the largest developer in the state, would most likely be the largest user of this new information. Mr. Holman thanked the meeting attendees for pointing out the error in the email that went out, which stated the stream mapping plan would cost \$16 billion. Mr. Holman indicated the email should have read "\$16 million over 5 years." He then relayed the fact that the stream mapping efforts is related to the Flood Plain Mapping Plan, which will result in the ability to do the stream mapping in an affordable way. Mr. Holman indicated the funding for flood plain mapping has come from the General Fund in the past and that the anticipated funding source is the same. Mr. Holman said it is unknown at this time if there is funding for the stream mapping initiative in the Governor's budget but that we will know fairly soon if it is included in the budget. Mr. Holman then asked for questions. Ms. Szlosberg asked the Board if they thought the stream mapping initiative would be beneficial to the NCDOT and reiterated the fact that the source of funding is unknown at this time. Ms. Szlosberg then indicated this initiative would be revisited during next month's meeting after the Governor's budget is announced.

Ms. Szlosberg then introduced Mr. Daniel Keel, Operations Program Manager, who would be providing an update on State Minimum Criteria. Ms. Szlosberg informed the Board that State Minimum Criteria went through rulemaking 3 years ago, establishing minimum criteria. Mr. Keel provided a handout (Minimum Criteria Annual Report for 2004) and said he would be reporting on the 2004 fourth quarter results and 2004 annual totals. The report was broken down into three criteria of particular interest: #8, #12, and #15.

- Criteria 8 deals with Highway modernization, less than 10 cumulative acres, resurfacing, additional turn lanes, braking, substandard curves and intersections, and minor widening.
- Criteria 12 deals with Maintenance, mostly grading and stabilizing unpaved roads, cleaning out ditches and culverts, patching, maintaining bridges, erosion and vegetation control, and snow and ice removal.
- Criteria 15 deals with construction of new two-lane highways, less than 25 cumulative acres and must be non-contiguous to other projects.

Mr. Keel indicated in the forth quarter of 2004, there were a total of 137 projects listed, for a total length of 203 miles, 62 projects done under Modernization (Criteria 8), 74 projects done under Maintenance (Criteria 12), and one project done under Criteria 15. This included the 310.81 disturbed acres of land for those projects.

Mr. Keel then referred to the Committee to the 2004 annual totals. There were 629 projects that fell under Minimum Criteria for a total project length of 860 miles. The average miles per project were 1.4 mi. and there were 1,269 acres of newly disturbed land. There was a total of 3.3 acres of wetlands that were impacted by these Minimum Criteria projects. Mr. Keel said that they are still working on a web-based application for Minimum Criteria so that data may be made available via the web. Mr. Keel then asked if the Board would still like to be provided a quarterly report and an annual report or only an annual report. Ms. Szlosberg requested that both reports continue to be provided.

Ms. Szlosberg asked how the 3.3 acres (of affected wetlands) would be handled by the Minimum Criteria. Mr. Keel deferred to Ms. Robin Little, who stated we are covered by nationwide

permits for most of the projects, which come in hundreds of acres per project and, therefore, fall under the 0.1 acre threshold for nationwide permits.

Ms. Szlosberg then inquired how the 1,269 acres (of newly disturbed land) compared to the previous year. Ms. Little responded that approximately 800 acres of newly disturbed land were impacted the previous year. A short discussion between Ms. Szlosberg and Mr. Keel culminated in the agreement that these are “very small numbers.”

Ms. Szlosberg then introduced Ms. Lori Cove, Congestion Management and Signing Unit, Traffic Engineering Branch, to present “Traffic Forecasting: Fact or Fiction?” Ms. Cove used a PowerPoint presentation for this discussion. Ms. Szlosberg indicated that the present traffic forecasting map is “red,” meaning twenty years from now, the traffic in the triangle area will be very congested. Ms. Szlosberg also indicated that she had been in a meeting with local city mayors, recently, and the Mayor from Wake Forest had wondered out loud; “...where are we going to move to?” Ms. Szlosberg then said that this spoke to the importance of the work being done in traffic forecasting and turned the presentation over to Ms. Cove.

Ms. Cove began by informing the Board that, previous to the position she holds now, she worked with the Transportation Planning Branch and was responsible for the traffic forecasting process. Ms. Cove recently transferred to the Traffic Engineering Branch and her unit is one of the primary users of the traffic forecast. Ms. Cove then introduced Mr. Mike Bruff, Director of the Transportation Planning Branch; Mr. Travis Marshall, Group Manager for the Eastern Region; Ms. Deborah Hutchings, State Traffic Forecasting Engineer; and Mr. Rhett Fussell, Unit Head for the Model Research and Development Unit, who would facilitate the Traffic Plan Modeling portion of the presentation. Ms. Cove said her goals for the presentation would be to answer the Board’s questions regarding traffic forecasting and to dispel some of the myths associated with the process.

Ms. Cove brought up the first slide of the presentation which was a schematic diagram of an area’s road network and included numbers (volumes) that show the current year’s traffic as well as traffic for a future year or years. This particular diagram showed the year 2025. Ms. Cove said there is other information provided, such as percentage of trucks and the predicted flow of traffic, but indicated the focus for this discussion would be on the volumes. Ms. Cove informed the Board that traffic forecasts are extremely critical to many people in and outside of the NCDOT and that many decisions are based on the forecasts. The first decision is “purpose and need,” which is about project justification: Are there going to be capacity problems in the future and too much traffic for the existing road system? Also considered is the determination of proposed improvements are cross section elements like the number of proposed lanes, shoulder widths, bridge widths, and median widths, which take into account future expansion. If we can forecast that more land will be required 30 years out, we can buy the needed right of way now. Another typical use of the traffic forecast is to determine interchange designs, type and configuration. Interchange justification studies determine if a road should go over or under another road and to look at the spacing between interchanges. The traffic forecast is also used in determining work zones and detour analyses, pavement design and thickness, type of pavement, pavement markings, markers, noise wall warrants, computation of Exposure Index at railroad crossings, and the feasibility of toll projects. Is the projected traffic volume and expected

revenue enough to move forward with particular potential toll projects? This is a possibility in the future.

Ms. Cove posed the question; “How do we go about developing a traffic forecast?” She stated that the answer to that begins by asking questions, such as:

- Where will people live, work, and shop in 5, 10, 20, or 30 years?
- How many cars will they have?
- Will people be driving cars in 2030?
- Will they be walking, riding transit, using segways?

Ms. Cove indicated that it is the Transportation Planning Branch’s responsibility to answer these questions for everyone in NC and people passing through the state.

Although each project is unique, Ms. Cove indicated there are a number of common steps to take when forecasting traffic. She then referred to the next slide and a handout (Flow Chart For Traffic Forecasting). The flowchart described each step in the traffic forecasting process. The first step is project initiation. The forecast is generated, primarily, by any member of the NCDOT, based on what they are getting ready to do (i.e. cross-section, roadway design, pavement design, etc). Next is data collection. A lot of work is required in order to acquire valid data such as historic travel and trends, population and employment, and information from long range plans regarding future additions to the transportation system. Local staff (planners, economic development officials, and NCDOT division staff, etc.) are key to gleaning insight to a particular area. It is critical that we learn from them, whether they think the future (5, 10, 15, 30 years) will be any different from the past (meaning will any trends change), will there be any land use changes, and do they anticipate any new industries moving to the area. Once background data has been collected, current year volume is determined and a variety of tools are used to predict the future. These tools include regression analysis, graphical analysis, trend analysis, compound interest, judgement, and travel demand models.

Ms. Cove introduced Mr. Rhett Fussell, Unit Head for the Model Research and Development Unit, to discuss the Traffic Demand Modeling Tool. Mr. Fussell began by stating the models are computer replications of what traffic is on our roadways right now, in 2005, and what it will look like 20 years from now. Mr. Fussell reiterated Ms. Cove’s reference to the questions used to make future traffic analyses (i.e. where people will live and work, and how and where they will travel in the future). He also referenced the data that is used, such as land use patterns, new mall locations, new industries coming to the area, etc. All of this info is used to determine a “best estimate” of where people will travel in the future and what road or bus they will use to get there.

Mr. Fussell indicated that the models used are mathematical in theory and, therefore, do not reflect human behavior. The models do not take into account the uniqueness of individuals. For instance, an individual person may sometimes take a more scenic route to work vs. the shortest route. No model can take into account all of the factors that affect travel behavior and thus no model can perfectly replicate or predict reality. These models are the best estimate of what might happen given current conditions.

Mr. Fussell brought up a slide that showed the “Triad Model,” which indicated 15,000 links/lines. It represented system-wide patterns and assumptions that were made for the entire area. This makes it hard to use this model for one specific area or road, and changes need to be made in order to focus on a smaller subset (area or road). Changes required may be testing for a four-lane road, or four-lanes with a median, or controlled access. All changes need to be determined, entered into the model, and the model must be re-done. Validation then needs to be done again, taking into account the effect to other areas and how traffic patterns may change. Mr. Fussell indicated that land-use changes impact how quickly a forecast can be completed. An example would be if a new mall were built that had not been accounted for, and it is generating a lot of traffic, it will affect the forecast and changes will need to be made (to the forecast). The biggest effort is to determine what assumptions to make.

Mr. Fussell completed his part of the presentation by stating that models are built for “Horizon years” (i.e. 2020, 2025, 2030, etc.) and that traffic patterns are very different, depending upon which year the model is built for. He also stated that if something is moved a mile further in a particular direction, people sometimes make different travel decisions based on travel time or distance, and the model does not take that into account. If this occurs, changes to the model may need to be made.

Mr. Fussell then turned the presentation back over to Ms. Cove. Ms. Cove noted that even if a model provides an answer, it might not be the final answer. She then referred to a slide (The Challenges) which highlighted some of the challenges that may affect the forecast:

- Public input
- Resource agency request
- Outdated original forecast
- Updated model
- Change in project scope
- A judge may have required a change
- Change in project limits
- Skeptical public/agencies
- New transportation corridors
- Land use changes

Ms. Cove used an article from *The Charlotte Observer* as an example of one of these challenges: “The best example is I-485 in south Charlotte... County commissioners originally told the state that the county east and south of Pineville would always be rural and major roads were not needed, so the state designed a two-lane outer-belt. But about 5 years before work began, the county reversed itself and agreed to allow the suburb development found today south of Mecklenburg,” which makes it very dense and which significantly changed the forecast.

Ms. Cove closed her presentation by reiterating her questions around where people will live, work, and shop in 5, 10, 20, and 30 years, how will they travel to and from those locations, and how those are the challenges facing us today. She then opened the discussion for questions.

Ms. Szlosberg asked if and how traffic forecasting is used “proactively” and “reactively,” in order to drive projects. Ms. Cove answered that yes forecasting is used in both ways. Travel Demand Modeling is used “proactively” for long range planning. The project level is very “reactive,” specifically, “how many lanes,” “how wide are the lanes, etc.”

Ms. Szlosberg noted that Leta Huntsinger of the Institute for Transportation Research and Education at NC State University recently gave a presentation on “Transnational.” Ms. Szlosberg said the gist of the presentation was that all of the transportation modeling was geared toward highway construction and, as a result, outputs do not support other modes (of transportation), like pedestrians, etc. Mr. Rhett Fussell fielded the question by agreeing that, yes, models typically focus on highways. However, the larger models indicate the other modes of transportation. Our models incorporate local transit except for rural areas.

Ms. Szlosberg then asked about “Trans-Tab” and “Transent,” the Los Alamos project. Mr. Fussell responded that has been ongoing for 15 years. He also stated that work on a multi-modal system is ongoing, nationally, for which Portland is the model.

Ms. Szlosberg thanked the presenters, Board members, and meeting attendees. She then stated Stream Mapping will be on the agenda again next month and adjourned the meeting. The next meeting of the Environmental Planning and Policy Committee is scheduled for Wednesday, March 2, 2005 at 8:30 AM in the Board Room (Room 150) of the Transportation Building.

NS/rs